

Workshop Series on Developing and Adopting Marking Rubrics in Relation to Assessment Types

Part 2a:

Marking Rubrics for MCQ tests, Presentations & Reports

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Contents

- Introduction
- What is rubrics? (Recap)
- Examples and issues with using rubrics for MCQ test, presentations and reports
- Aligning marking rubric with institutional subject grade descriptors

Reflection & Discussion in Pairs

1. Indicate assessment tasks that you commonly use in your courses

2. Analyse how the assessment tasks indicated relate to measuring different levels of knowledge

	Factual knowledge	Conceptual/ Procedural knowledge	Metacognitive knowledge
<input type="checkbox"/> Class participation			
<input type="checkbox"/> Group project			
<input type="checkbox"/> Presentation			
<input type="checkbox"/> Short Answer Question			
<input type="checkbox"/> Essay			
<input type="checkbox"/> Poster			
<input type="checkbox"/> Practical (labs, field study)			
<input type="checkbox"/> Quiz			
<input type="checkbox"/> Other, please specific: _____			

- Adapted from the revised taxonomy by Bloom (2001)
 - ❑ Factual knowledge
 - ✓ by reproduction (*to recognize, recall*)
 - ❑ Conceptual/ Procedural knowledge
 - ✓ by understanding (*to interpret, exemplify, summarize...*)
 - ✓ by application (*to execute, implement...*)
 - ❑ Metacognitive knowledge
 - ✓ Analysis (*to differentiate, organize...*)
 - ✓ Evaluation (*to check, critique...*)
 - ✓ Creation (*to generate, plan, produce...*)

Recap

What is a rubric? Rubric is

- a **common assessment tool** used in higher education.

(Andrade, 2000; Greenberg, 2015;
Reddy & Andrade, 2010)

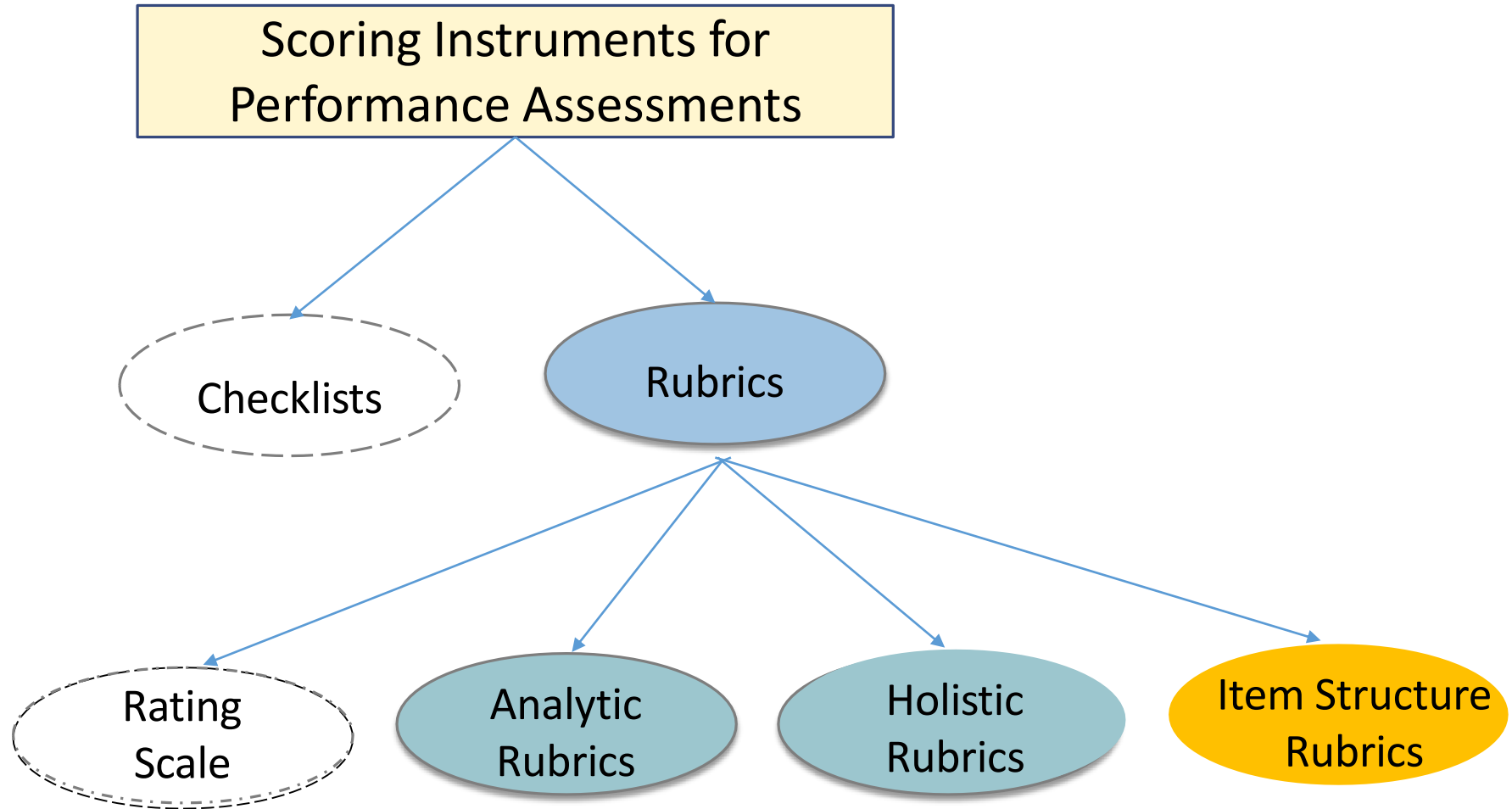
- a scoring tool that lays out the ***specific expectations for an assessment task***.

(Stevens & Levi, 2005)

- a set of clear explanations or criteria used to help teachers and students focus ***on what is valued in a subject, topic, or activity***.

(Russell, & Airasian, 2012)

Recap



Issues with using rubrics for MCQ tests

Reference:

<https://teaching.unsw.edu.au/assessing-multiple-choice-questions>

- MCQ tests are strongly associated with assessing lower order cognition such as the recall of discrete facts.
- **Assessors have questioned their use in higher education.**
- MCQ tests can be used to assess higher order cognition (such as synthesis, creative thinking and problem solving).
- **But questions must be drafted with considerable skill if such tests are to be valid and reliable.**
- This takes time and entails significant subjective judgment.

Item Structure Rubrics - quantitative

Grade	Descriptor
A	Able to interpret and identify the underlying logic of the problem, solve the various elements of the problem, bring the various elements together to form a coherent solution to the problem, and to express that solution logically and comprehensively
B	Able to identify all appropriate expression for the solution of the problem and be able to apply all to solve each element of a problem
C	Able to identify all or most appropriate expressions for the solution of the problem, but unable to apply all to solve each element
D	Able to solve a simple problem involving one aspect of a problem only
F	Unable to solve simple problems

Item Structure Marking Rubric - quantitative

$$H(t) = \begin{cases} 1 & \text{if } t \geq 0. \end{cases}$$

[8 marks]

applied

4. (a) Find the equation of the tangent plane to the surface $xy + yz + zx = 5$ at the point $(1, 2, 1)$.

D

[6 marks]

- (b) Consider the function $f(x, y, z) = 4x - y^2 e^{3xz}$.

*used
plots*

- (i) In which direction does f have its maximum rate of change at the point $(3, -1, 0)$? What is the maximum rate of change in this direction?

B C

- (ii) Find the directional derivative of f at the point $(3, -1, 0)$ in the direction $\vec{v} = (-1, 4, 2)$.

D

[6 marks]

- (c) (i) The equation $x^3 + 2x^2yz + \sin z - 1 = 0$ defines z implicitly as a function of x and y , i.e., $z = z(x, y)$. Find $\frac{\partial z}{\partial x}$ and $\frac{\partial z}{\partial y}$.

C/R

- (ii) Consider now the function $z = z(x, y)$ in part (i) above, and assume in addition that the variables x and y are functions of two other variables u and v :

B/A

*complex
problem*

$$x = \frac{u^2 - v^2}{2}, \quad y = uv.$$

Find $\frac{\partial z}{\partial u}$.

Explain your reasoning Show your reasoning

[8 marks]

5. (a) Consider the function $f(x, y) = \sin x \sin y$ in the square $0 < x < 2\pi$, $0 < y < 2\pi$. Find and classify the critical points of f , i.e., find the saddle points, local minima and maxima of f in $0 < x < 2\pi$, $0 < y < 2\pi$.

- If MCQ test is being used as part of a major assessment task, you need to ensure that there are other questions measuring higher order learning.

OR

- If MCQ test is used as an assessment task by itself, you need to ensure that there are other assessment tasks that assess higher order learning

Examples and issues with using rubrics for presentations and reports

Type of Rubrics	Advantages	Disadvantages
<h2 data-bbox="86 254 340 325">Holistic</h2> <p data-bbox="86 405 421 622">(a summary description of qualities for each grade)</p>	<ol data-bbox="510 248 1209 739" style="list-style-type: none"> 1. Quick scoring and provide an overview of student achievement. 2. Use as summative assessment. 3. Use when errors in some part of the process can be tolerated provided the overall quality is high 	<ol data-bbox="1242 248 1818 645" style="list-style-type: none"> 1. Difficult to assign scores consistently, because few students meet one description accurately. 2. Does not yield feedback on students' strengths and weaknesses.
<h2 data-bbox="86 811 363 882">Analytic</h2> <p data-bbox="86 962 459 1179">(multiple criteria for grading, each with levels of quality description)</p>	<ol data-bbox="510 805 1197 1273" style="list-style-type: none"> 1. Provide specific strengths/weaknesses are desired. 2. Scoring is more consistent across students and grades 3. Provides meaningful and specific feedback along multiple dimensions 	<ol data-bbox="1242 805 1812 1159" style="list-style-type: none"> 1. Takes more time to create and use 2. Unless each point for each criterion is well-defined, assessors may not arrive at the same score.

Rubric for PowerPoint and Oral Presentation

	Awesome 4	Admirable 3	Acceptable 2	Unacceptable 1
Critical thinking	Thoughtfully and accurately interprets results, shows in-depth understanding of major ideas	Identifies relevant arguments, justifies results, offers reasons	Usually justifies results and offers reasons	Misinterprets data, gives unjustified arguments
Quality of information	Covers topic thoroughly, includes details that support the topic	Includes essential information, includes some supporting details	Includes most essential information, details are somewhat sketchy	Lacks essential information
Organization	Well organized and coherent, topics are in logical sequence, includes clear introduction and conclusions	Organized, some topics are out of logical order, conclusions are generally clear	Some organization, topics jump around, conclusions are unclear	Not organized, topics make no sense
Grammar and spelling	All grammar and spelling are correct	Only one or two errors	More than two errors	Very frequent grammar and/or spelling errors
Visual design	Visually appealing, clean simple layout, text is easy to read, graphics enhance understanding of ideas	Visually attractive, text is easy to read, colors enhance readability, graphics and special effects do not distract from understanding ideas	Text is sometimes hard to read, sometimes graphics or special effects distract from understanding	Text is very difficult to read, layout is cluttered and confusing
Oral presentation	Well prepared, speaks clearly, makes eye contact with audience, delivers with ease, invites questions	Engages audience, fluid delivery, uses different approach other than simply reading screen, invites questions	Clear and understandable, uses limited delivery techniques	Not clear, not understandable
Teamwork	Willingly accepts and fulfills individual role in group, sensitive to feelings and needs of group members	Fulfills individual role within group without prompting, respectful of others	Works toward group goals with occasional prompting, maintains positive attitude	Works toward group goals only when prompted, needs occasional reminders to be sensitive to others



Component	Level of Description		
	Sophisticated	Competent	Not yet Competent
Oral Presentation	Speakers are audible and fluent on their topic, and do not rely on notes to present or respond. Speakers respond accurately and appropriately to audience questions and comments.	Speakers are mostly audible and fluent on their topic, and require minimal referral to notes. Speakers respond to most questions accurately and appropriately.	Speakers are often inaudible or hesitant, often speaking in incomplete sentences. Speakers rely heavily on notes. Speakers have difficulty responding clearly and accurately to audience questions.

Task: Write a research report

Level	Description
Limited (1 point)	Project may have a hypothesis, procedure, collected data, and analyzed results. Has several inaccuracies that affect quality of project.
Adequate (2 point)	Project may have a hypothesis, procedure, collected data, and analyzed results. Project not as thorough as it could be; there are a few overlooked areas. Has a few inaccuracies that affect quality of project.
Proficient (3 point)	Project had a hypothesis, procedure, collected data, and analyzed results. Project is thorough and finding(s) are in agreement with data collected. May have minor inaccuracies that do not affect quality of project.

Rubric for research reports.

	Criteria				Points
	4	3	2	1	
Introduction/ topic	Student properly generates questions and or problems around a topic.	Student generates questions and or problems.	Student requires prompts to generate questions and or problems.	Questions or problems are teacher generated.	
Conclusions reached	Numerous detailed conclusions are reached from the evidence offered.	Several detailed conclusions are reached from the evidence offered.	Some detailed conclusions are reached from the evidence offered.	A conclusion is made from the evidence offered.	
Information gathering	Information is gathered from multiple electronic and non-electronic sources and cited properly.	Information is gathered from multiple electronic and non-electronic sources.	Information is gathered from limited electronic and non-electronic sources.	Information is gathered from non-electronic or electronic sources only.	
Summary paragraph	Well organized, demonstrates logical sequencing and sentence structure.	Well organized, but demonstrates illogical sequencing or sentence structure.	Well organized, but demonstrates illogical sequencing and sentence structure.	Weakly organized.	
Grammar and spelling	Punctuation and capitalization are correct.	There is one error in punctuation and/or capitalization.	There are two or three errors in punctuation and/or capitalization.	There are four or more errors in punctuation and/or capitalization.	
				Total	

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Take a few minutes to think about which type(s) of rubrics you would want to use for assessing the learning of your students and why

Aligning marking rubric with institutional subject grade descriptors

Why should we do this?

Hands-on

DRAFT REVISION TO POLYU INSTITUTIONAL SUBJECT GRADING DESCRIPTORS

Subject grade	Short description	Elaboration on subject grading description
A	Excellent	Demonstrates excellent achievement of intended subject learning outcomes by being able to skillfully use concepts and solve complex problems. Shows evidence of innovative and critical thinking in unfamiliar situations, and is able to express the synthesis or application of ideas in a logical and comprehensive manner.
B	Good	Demonstrates good achievement of intended subject learning outcomes by being able to use appropriate concepts, and solve problems. Shows the ability to analyze issues critically and make well-grounded judgements in familiar or standard situations, and is able to express the synthesis or application of ideas in a logical and comprehensive manner.
C	Adequate/Acceptable/ Satisfactory	Demonstrates satisfactory achievement of intended subject learning outcomes by being able to solve relatively simple problems. Shows some capacity for analysis and making judgements in a variety of familiar and standard situations, and is able to express the synthesis or application of ideas in a manner that is generally logical but fragmented.
D	Marginal	Demonstrates marginal achievement of intended subject learning outcomes by being able to solve relatively simple problems. Can make basic comparisons, connections and judgments and express the ideas learnt in the subject, though there are frequent breakdowns in logic and clarity.
F	Fail	Demonstrates inadequate achievement of intended learning outcomes through a lack of knowledge and/or understanding of the subject matter. Evidence of analysis is often irrelevant or incomplete.

Note 1: Marking rubrics aligned with these grade descriptors need not include all aspects of the grade descriptor

Note 2: Marking rubrics aligned with these grade descriptors may include other aspects aligned with particular subject matter or field of study requirements but are not included in the grade descriptor

Marking rubrics aligned with these Grade Descriptors may take one of three suggested forms:

1. Holistic marking rubrics
2. Analytic marking rubrics
3. Item structure marking rubric

The holistic and analytic rubrics may be appropriate to assessment items asking for open ended responses such as essays, research reports, oral presentations, capstone reports etc. – qualitative responses

The item structure rubric may be appropriate to assessment items composed of parts of increasing complexity such as more quantitative items, with each part aligned with the marking rubric descriptor - quantitative responses

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Part 2b:

Marking Rubrics for Essays / Long Questions, Short Questions

15/11/2018, Thu

Bring your own subject assessment task and rubric!!

Resources

- Examples of Grade Descriptors @ HKU
https://ar.cetl.hku.hk/grade_example.htm
- AACU's VALUE Rubrics (16 Assessment Rubrics)
<http://www.aacu.org/value/rubrics/index.cfm>
- More examples of rubrics
<http://ias.virginia.edu/assessment/outcomes/tools/rubrics>